

REMARKS

This paper is in response to the official action of December 21, 2005. The advisory action of March 1, 2006, is acknowledged. Reconsideration is requested.

By the foregoing, claim 1 has been amended to recite forming a polysilicon film and a tungsten and silicide film, and performing an etching process to etch the tungsten silicide film and the polysilicon film under the tungsten silicide film using the same etching gas, forming a gate electrode comprising the tungsten silicide film and the polysilicon film. Support is found at page 6, lines 8-12 of the specification. The remaining claims have been amended for consistency with claim 1 and for clarity, and claim 4 has been canceled. New claim 9 recites a gate electrode in a semiconductor according to claim 1, comprising forming the tungsten silicide film by reacting SiH₄ or SiH₂Cl₂ with WF₆ at a stoichiometric ratio of (SiH₄ or SiH₂Cl₂): WF₆ of 2.0 - 2.8.

Claims 1-3 and 5-9 are at issue.

The anticipation rejection of claims 1-5 and 8 based on Chang et al. U.S. 6,380,029, and the obviousness rejection of claims 6 and 7 based on the combination of Chang with Xu et al. U.S. 6,544,896 are respectfully but strongly traversed. Reconsideration is requested.

As disclosed in the specification at page 6, the tungsten silicide film made according to the invention has good step coverage and a surface resistance and the surface resistance of the tungsten silicide film is minimized.

It is submitted that the applied references do not teach or suggest the steps recited in the present claims, and thus do not teach or suggest the presently claimed method, which results in the favorable attributes of the invention.

As a result, it is believed that the claims at issue are clearly patentably over the applied references, and an indication to that effect is solicited.

Referring to amended claim 1 and Fig. 3, the polysilicon film (e.g., 22b) and the tungsten silicide film (20) are sequentially formed on the semiconductor substrate to form a

gate electrode. The etch rate of the tungsten silicide film (22b) is similar to that of the polysilicon film (20) as a result the annealing process. Accordingly, the tungsten silicide film (22b) and the polysilicon film (20) can be etched by the same etching gas.

The examiner asserts that Chang teaches forming a gate electrode by etching the WSi (50) and the polysilicon (52) using Cl₂/O₂ (col. 8, lines 53-55). However, the polysilicon (52) is formed as a hard mask (corresponding to the hard mask 24 of the present invention), but not as a control gate. Therefore, the polysilicon (52) is formed on the WSi (50). A layer to form a control gate is a doped polysilicon layer (48) that is formed under the WSi (50). That is, a control gate of Chang consists of WSi (50) and the doped polysilicon layer (48). Referring to col. 8, lines 53-57, WSi (50) and the doped polysilicon layer (48) are etched by different etching gases. As mentioned above, Chang does not teach or suggest that the WSi (50) and the polysilicon layer (48) under the WSi (50) are etched by the same etching gas.

Accordingly, the Applicant believes that the amended claim 1 is patentable over the cited references and other claims depending from claim 1 are also in condition for allowance.

Should the examiner wish to discuss the foregoing or any matter of form in an effort to advance this application toward allowance, he is urged to telephone the undersigned at the indicated number.

Respectfully submitted,

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